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# Cooperative Extension and Agricultural Profitability--

## Integrated Pest Management Reduces Costs and Increases Income

Extension Service  
U.S. Department of Agriculture

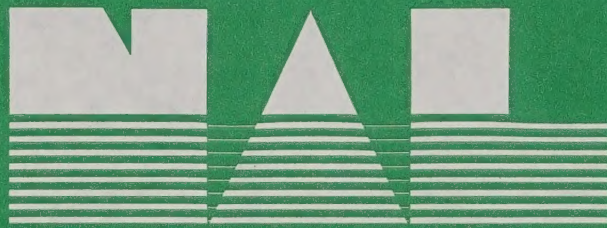
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COOPERATIVE EXTENSION AND AGRICULTURAL PROFITABILITY  
INTEGRATED PEST MANAGEMENT REDUCES COSTS AND INCREASES INCOME

CATALOGING PREP

Many American farmers face severe financial difficulties. For some, bankruptcy will be the outcome. For others, farming will continue to be their way of life only if they increase income or reduce costs or both. One way they can directly influence their financial fate is to manage their costs of production effectively. Pest control expenses are a hefty share of these costs. Pesticide costs (not including application) are estimated at \$4½ billion in 1985. In 1980, pesticide costs as a share of production costs averaged 6.5% for rice, 16% for peanuts, and 12% for cotton.

Nationally, the Cooperative Extension system is directing \$15 million in public funds in 1985 toward the program known as Integrated Pest Management (IPM). Growers, in addition, will pay at least \$20 million to private and public sources of such information or services.

## IPM METHODS

IPM includes these basic components:

- . Use several methods to control pests;
- . Use methods only if they will prevent losses greater than the cost of using such methods;
- . Know the pests, the crop, and the environmental factors, to make effective decisions on control.

IPM methods can involve pesticides, such as herbicides, insecticides, and fungicides; biological control; and cultural control. The intent of IPM is not to eliminate pesticides but to insure their use only when appropriate. Farmers who can improve the selection, timing, and use of pesticides can reduce costs of pest control, keep pesticide effectiveness high and protect the environment.

Biological control can include release of imported or artificially cultured disease agents, parasites, or predators of a pest species. It can involve conserving native natural enemies of the pests. Cultural control can consist of growing crops that resist pests and managing fertility and soil moisture to promote plant health. Cultural control can also mean selecting planting and harvest dates that reduce likelihood of pests, and rotating crops.

## EXTENSION EDUCATIONAL PROGRAMS

Extension IPM programs help farmers gain the knowledge they need to use integrated pest management methods effectively. Extension staff train farmers to (1) identify and evaluate pest problems on their own crops or to (2) evaluate information of this sort that they receive from other sources, such as agricultural consultants or fieldmen, and then decide



what action to take. Farmers can hire Extension-trained field scouts to collect data on pest populations in their fields. Extension staff also provide special training for agricultural consultants, agribusiness field staff, and others who provide information to farm managers and other decisionmakers on the farm.

Networks of Extension staff and volunteers collect and distribute information on local crop and pest conditions and on weather factors that affect development of crops and pests alike. These networks range from sophisticated computer systems to volunteer observers who call information into a message center. Extension staff and volunteers must report data quickly and accurately so that farmers can respond quickly and effectively.

#### ACCOMPLISHMENTS IN 1984

The examples of accomplishments listed below come from Extension's Narrative Accomplishment Reporting System. For cotton and fruit and nut crops, IPM programs have reduced costs of production. For some other crops, increasing production was more appropriate as a way to expand profitability.

##### Cotton

Cotton is one of IPM's greatest successes.

State	Pesticide Cost Decrease
Louisiana	\$2,925,000
Mississippi	\$15,000,000
North Carolina	\$18/acre
Florida	\$114,000
Oklahoma	\$7/acre on 19,000 acres

##### Fruit and Nut Crops

State	Crop	Production Cost Decrease
Alabama	Pecans	\$1,900,000
Connecticut	Orchards	Up to 7 sprays less/season Average 4 sprays less than counterparts not using IPM techniques
Oregon	Filberts	Reduced 25%
Maine	Apples	\$20/less/acre
New York	Apples	Cut \$27/acre on 43,000 acres
Utah	Fruit	Cut \$60/acre on 700 acres

Washington	Apples	Cut \$330,000 in insecticide costs using codling moth model as basis for spray decisions
	Raspberries	Avoided loss of \$400,000 while saving over \$24,000 in chemical costs
West Virginia	Orchards	Spray costs cut \$30-46/acre.

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State	Crop	Production Increase
Florida	Snapbeans	Up 5 bu./acre
Kentucky	Hay	Quality increase
Maine	Sweet corn	Marketable yield up 50-100%; enterprise profitability up 20%
Massachusetts	Cranberries	Income up \$250/acre
	Hay	Yields reached 7 tons/acre
New Hampshire	Apples	Pest injury reduced 33%
Puerto Rico	Rice	Production up 40%
	Vegetables	Production up 15%
Wyoming	Alfalfa hay	Yields up 0.7 ton (23%/acre)

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The Cooperative Extension Service in each state determines which commodities will be emphasized in the IPM program.

Selected results in some major field crops are shown below:

#### Soybeans

State	Result
Arkansas	Reduced costs \$11/acre on 13,000 acres.
Delaware	Prevented loss of up to 420,000 bushels.
Florida	Reduced insect control costs \$390,000.
Illinois	Reduced seedling blight on 1.2 million acres
Louisiana	Reduced pesticide use and increased efficacy on 800,000 acres for value of \$4/acre.
Maryland	Earned \$2.5 for each dollar invested in IPM.
Tennessee	Lowered pesticide use 50%; cut production costs \$3-\$10/acre.
Virginia	Increased farm profits \$561,000.

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## Corn

Illinois	Prevented corn borer losses on 135,000 acres.
Indiana	Reduced insurance treatments for soil insects by 15%.
Iowa	Cut pesticide costs \$90,000.
Nebraska	Saved \$12-\$30/acre on 210,000 acres in west-central part of state.
Wisconsin	Clark County growers saved up to \$13,000 in insecticide costs.

## Miscellaneous or Unidentified Field Crops

State	Result
Alabama	Reduced costs of peanut production \$10/acre on 125,000 acres.
Colorado	Potato growers saved \$3 million.
Kentucky	Lowered production costs \$765,000.
New York	Lowered unwarranted pesticide use 5%.
North Carolina	Peanut growers saved \$230,000 in one county.
Rhode Island	Potato growers saved \$50,000 in insecticide costs.
Virginia	Small grain cooperators' profits increased \$509,900.

Some States conduct programs directed at many commodities or at a segment of agriculture not aligned with any specific commodity. Selected examples of results appear below:

State	Result
California	Participants had 15-20% reduction in pest damage.
Delaware	Reduced insecticide costs \$17,500.
Idaho	Cut pesticide costs \$855,000.
Maryland	Increased direct income due to IPM: \$431,381.
Michigan	Avoided commodity losses of \$47 million.
New Jersey	Cut production costs \$12-\$24/acre.
North Carolina	Increased profitability 3-8% (including poultry).
North Dakota	Benefit/cost ratio = 6.2

## IMPLICATIONS

These selected accomplishments demonstrate the continued effectiveness of Extension's Integrated Pest Management Program as an approach that conserves and protects the environment, helps farmers cut costs of production, and adds to the safety and quality of our food supply. IPM represents a modest investment with a maximum gain, the benefits of which are demonstrable and substantial.







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